



SDS DATE: April 25, 2023

**SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** Nuclear/Cytosol Fractionation Kit  
**PRODUCT CODES:** Cat# PI-0107-25, -100  
**MANUFACTURER:** AkrivisBio Inc.  
**ADDRESS:** 48511 Warm Springs Blvd., Suite 213, Fremont, CA 94539  
**EMERGENCY PHONE:** 408-739-9315  
**EMAIL:** [sds@akrivisbio.com](mailto:sds@akrivisbio.com)

**SECTION 2: HAZARDS IDENTIFICATION**

Component	Description	Volume	Safety Information
Cytosol Extraction Buffer A	Proprietary Buffer	-25: 5 ml -100: 20 ml	No hazards
Detergent Solution	Contains Tergitol	1.2 ml	See below
Nuclear Extraction Buffer	Proprietary Buffer (contains Glycerol)	-25: 2.5 ml -100: 10 ml	No hazards
Dithiothreitol (DTT)	1 M solution in dH <sub>2</sub> O	100 µl	See below
Protease Inhibitor Cocktail	Lyophilized (contains PMSF)	1 vial	See below

**Tergitol:**

**Emergency Overview**

**GHS Classification:** Skin irritation (Category 2), H315

Skin sensitization (Sub-category 1A), H317

Short-term (acute) aquatic hazard (Category 1), H400

Long-term (chronic) aquatic hazard (Category 1), H410

**GHS Label elements, including precautionary statements**

**Pictogram:**



**Signal word:**

Warning

**Hazard statement(s):**

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statement(s):** P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash skin thoroughly after handling.

P272 Contaminated work clothing must not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P391 Collect spillage.

P501 Dispose of contents/ container to an approved waste disposal plant

**HMIS Classification**

**Health hazard:** 0

**Chronic health hazard:**

**Flammability:** 0

**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 0

**Fire:** 0

**Reactivity hazard:** 0

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Material is irritating to the tissue of the mucous membranes and upper respiratory tract. Harmful; if inhaled. May cause allergy or asthma symptoms or breathing difficulties.

**Skin:** May be harmful if absorbed through skin. May cause an allergic skin reaction.

**Eyes:** Causes eye irritation.

**Ingestion:** Harmful if swallowed.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated

**Glycerol:**

**Emergency Overview**

**OSHA Hazards:** Target organ effect

**Target Organs:** Kidney

**GHS Classification:** Skin irritation (Category 3)

Eye irritation (Category 2B)

**GHS Label elements, including precautionary statements**

**Pictogram:** none

**Signal word:** none

**Hazard statement(s):** none.

**Precautionary statement(s):** P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**HMIS Classification**

**Health hazard:** 1

**Chronic Health Hazard:** \*

**Flammability:** 1

**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 1

**Fire:** 1

**Reactivity Hazard:** 0



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**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.  
**Skin:** May be harmful if absorbed through skin. May cause skin irritation.  
**Eyes:** May cause eye irritation.  
**Ingestion:** May be harmful if swallowed.

**DTT:**

**Emergency Overview**

**OSHA Hazards:** Target organ effect, Toxic by ingestion, Irritant

**Target Organs:** Central nervous system

**GHS Classification:** Acute toxicity, Oral (Category 5)  
Skin irritation (Category 2)  
Eye irritation (Category 2A)

**GHS Label elements, including precautionary statements**

**Pictogram:**



**Signal word:**

Warning

**Hazard statement(s):**

H303 May be harmful if swallowed  
H315 Causes skin irritation  
H319 Causes serious eye irritation  
H335: May cause respiratory irritation

**Precautionary statement(s):** P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**HMIS Classification**

**Health hazard:** 2

**Chronic Health Hazard:** \*

**Flammability:** 0

**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 2

**Fire:** 0

**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** Toxic if swallowed.

**PMSF:**

**Emergency Overview**

**Synonyms:**

$\alpha$ -Toluenesulphonyl fluoride, phenylmethylsulfonyl fluoride, Benzylsulfonyl fluoride

**OSHA Hazards:**

acute toxicity, skin corrosion, serious eye damage

**GHS Classification:**

Acute toxicity (Category 3)  
Serious eye damage (Category 1)  
Skin irritation (Category 1B)

**GHS Label elements, including precautionary statements**

**Pictogram:**



**Signal word:**

Danger

**Hazard statement(s):**

H302: Toxic if swallowed.  
H314 Causes severe skin burns and eye damage.

**Precautionary statement(s):**

P260 Do not breathe dust or mist.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER or doctor/ physician.  
P363 Wash contaminated clothing before reuse..

**HMIS Classification**

**Health hazard:** 2

**Flammability:** 0

**Physical hazards:** 0

**NFPA Rating**

**Health Hazard:** 2

**Fire:** 0

**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled.

**Skin:** Causes skin corrosion.

**Eyes:** Causes serious eye damage.

**Ingestion:** May be harmful if swallowed.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS Number	EC-No.	Molecular Weight	Chemical Formula
Tergitol	84133-50-6	617-534-0	680.0	--



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Glycerol	56-81-5	200-289-5	92.09	HOCH <sub>2</sub> CH(OH)CH <sub>2</sub> OH
DTT	3483-12-3	222-468-7	154.25	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub> S <sub>2</sub>
PMSF	329-98-6	206-350-2	174.19	C <sub>7</sub> H <sub>7</sub> FO <sub>2</sub> S

**SECTION 4: FIRST AID MEASURES**

**General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.  
**If inhaled:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.  
**In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.  
**In case of eye contact:** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.  
**If swallowed:** DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**SECTION 5: FIRE-FIGHTING MEASURES**

**Condition of flammability:** Not flammable or combustible.  
**Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.  
**Special protective equipment for fire-fighters:** Wear self-contained breathing apparatus for firefighting if necessary.  
**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions— see section 10.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Personal precautions:** Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.  
**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.  
**Methods for cleaning up:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

**SECTION 7: HANDLING AND STORAGE**

**PMSF:**  
**Precautions for safe handling**  
 Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.  
**Conditions for safe storage**  
 Keep container tightly closed in a dry and well-ventilated place. Moisture sensitive.  
 Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials.  
 Recommended storage temperature: -20°C

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Glycerol:**

Components	CAS-No.	Value	Control parameters	Basis
Glycerol	56-81-5	TWA	10 mg/m <sup>3</sup>	USA. American Conference of Governmental and Industrial Hygienists; Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs ) and Biological Exposure Indices (BEIs).

**Tergitol:**

**Control parameters**

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Poly(ethylene oxide)	US WEEL	TWA aerosol	10 mg/m3

**Engineering Controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**DTT:**

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**

Tightly fitting safety goggles. Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**

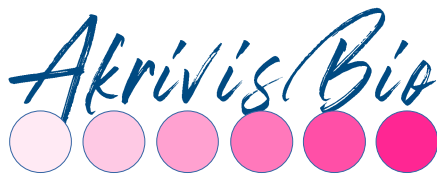
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

Property	Tergitol	DTT	PMSF	Glycerol
<b>Appearance:</b>	Liquid	Clear liquid	white crystals	Clear liquid
<b>pH</b>	7.2	3.0-5.0	No data available	5.5-8
<b>Water Solubility:</b>	<0.5%	Highly soluble	No data available	Soluble
<b>Other Solubility:</b>	No data available	No data available	No data available	No data available
<b>Boiling Point (°C):</b>	> 200 °C (> 392 °F)	No data available	No data available	182 °C (360 °F)
<b>Melting Point (°C):</b>	No data available	No data available	92°C	20 °C (68 °F)
<b>Flash Point (°C):</b>	218 °C (424 °F) ASTM D 93, closed cup	No data available	No data available	160 °C (320 °F)
<b>Ignition Temp. (°C):</b>	No data available	No data available	No data available	370 °C (698 °F)



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Density:	1.027 g/ml	1.035 g/cm <sup>3</sup>	No data available	1.25 g/ml
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**SECTION 10: STABILITY AND REACTIVITY**

Property	Tergitol	Glycerol	PMSF	DTT
<b>Chemical Stability:</b>	Stable under recommended storage conditions			
<b>Conditions to Avoid:</b>	Strong heating	Not available	No data available	No data available
<b>Materials to Avoid:</b>	Strong acids, strong bases, Strong oxidizing agents	Strong bases, strong oxidizing agents	Strong oxidizing agents, Strong bases, acids	Bases, oxidizing agents, reducing agents, alkali metals
<b>Hazardous decomposition products:</b>	Carbon oxides (fire condition)	Carbon oxides	Contact with acids liberates toxic gas	Carbon oxides, sulfur oxides, hydrogen sulfide gas

**SECTION 11: TOXICOLOGICAL INFORMATION**

**Tergitol:**

**Acute toxicity:** no data available

**Skin corrosion/irritation:** Skin – rabbit – mild skin irritation.

**Serious eye damage/eye irritation:** Eyes – rabbit – severe eye irritation.

**Respiratory or skin sensitization:** Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

**Germ cell mutagenicity:** no data available

**Carcinogenicity:**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** no data available

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** Inhalation – may cause respiratory irritation.

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** Harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** Harmful if swallowed.

**Signs and Symptoms of Exposure:** Exposure may cause nausea, headache, and/or vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional information:** no data available

**Glycerol:**

**Acute toxicity:** LD50 Dermal – rabbit – >10,000 mg/kg

**Irritation and corrosion:** no data available

**Sensitization:** no data available

**Germ cell mutagenicity:** no data available

**Carcinogenicity:**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** no data available

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes:** May cause eye irritation.

**Ingestion:** May be harmful if swallowed.

**Synergistic effects:** no data available

**Additional information:** RTECS: MA8050000

**DTT:**

**Acute toxicity:** no data available

**Skin corrosion/irritation:** no data available

**Serious eye damage/eye irritation:** no data available

**Respiratory or skin sensitization:** no data available

**Germ cell mutagenicity:** no data available

**Carcinogenicity:**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** no data available

**Teratogenicity:** no data available

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** Toxic if swallowed.

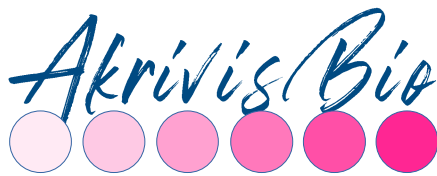
**Signs and Symptoms of Exposure:** Exposure may cause central nervous system depression. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects:** no data available

**Additional information:** RTECS: not available

**PMSF:**

**Acute toxicity:** LD50 Oral - Mouse - 200 mg/kg



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**Skin corrosion/irritation:** no data available

**Serious eye damage/eye irritation:** no data available

**Respiratory or skin sensitization:** no data available

**Germ cell mutagenicity:** no data available

**Carcinogenicity:**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity:** no data available

**Teratogenicity:** no data available

**Specific target organ toxicity – single exposure (GHS):** no data available

**Specific target organ toxicity – repeated exposure (GHS):** no data available

**Aspiration hazard:** no data available

**Potential Health Effects**

**Inhalation:** May be harmful if inhaled. Causes respiratory tract irritation.

**Skin:** Harmful if absorbed through skin. Causes skin irritation.

**Eyes:** Causes eye irritation.

**Ingestion:** Harmful if swallowed.

**Signs and Symptoms of Exposure:** To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects:** no data available

**Additional information:** RTECS: XT8040000

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## SECTION 12: ECOLOGICAL INFORMATION

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**Tergitol:**

**Toxicity:** No data available

**Persistence and degradability:** Readily biodegradable

**Bioaccumulative potential:** No data available

**Mobility in soil:** No data available

**PBT and vPvB assessment:** No data available

**Other adverse effects:** No data available

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## SECTION 13: DISPOSAL CONSIDERATIONS

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**Tergitol:**

**Product:** Waste material must be disposed of in accordance with the national and local No mixing with other waste.

**Contaminated packaging:** Dispose of as unused product.

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## SECTION 14: TRANSPORT INFORMATION

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**Tergitol:**

**DOT (US):** Not dangerous goods

**IMDG:** Not dangerous goods

**IATA:** Not dangerous goods

**PMSF:**

**DOT (US):** UN number: 2928                      Class: 6.1 (8)                      Packing group: II

Proper shipping name: Toxic solids, corrosive, organic, n.o.s. ( $\alpha$ -Toluenesulphonyl fluoride)

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

**IMDG:** UN number: 2928                      Class: 6.1 (8)                      Packing group: II                      EMS-No: F-A, S-B

Proper shipping name: TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S. ( $\alpha$ -Toluenesulphonyl fluoride)

**IATA:** UN number: 2928                      Class: 6.1 (8)                      Packing group: II

Proper shipping name: Toxic solid, corrosive, organic, n.o.s. ( $\alpha$ -Toluenesulphonyl fluoride)

**Glycerol & DTT:**

**DOT (US):** Not dangerous goods

**IMDG:** Not dangerous goods

**IATA:** Not dangerous goods

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## SECTION 15: REGULATORY INFORMATION

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**OSHA Hazards:** Glycerol: Target organ effect

**DTT:** Target organ effect, Toxic by ingestion, Irritant

**SARA 302 Components:** SARA 302: No chemical in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components:** SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards:** Tergitol: Acute Health Hazard

Glycerol: Chronic Health Hazard

**DTT:** Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components:** Glycerol, CAS-No. 56-81-5; Revision Date: 2007-03-01

**Pennsylvania Right To Know Components:** Glycerol, CAS-No. 56-81-5; Revision Date: 2007-03-01

**DTT**, CAS-No. 3483-12-3

**PMSF**, CAS-No. 329-98-6

**New Jersey Right To Know Components:** Glycerol, CAS-No. 56-81-5; Revision Date: 2007-03-01

**DTT**, CAS-No. 3483-12-3

**PMSF**, CAS-No. 329-98-6

**California Prop. 65 Components:** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**EU regulations**

Component	Risk Phrases	Safety Phrases
Glycerol	--	S24/25
DTT	R20/21/22	S2, S46
PMSF	R25, R34	S26, S36/37/39, S45



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**SECTION 16: OTHER INFORMATION:**

**OTHER INFORMATION:**

**PREPARATION INFORMATION:**

**DISCLAIMER:**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. AkrivisBio Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.